CLAIMS

1. A process wherein a dichloromonophenyl phosphate and monochlorodiphenyl phosphate is reacted with an aliphatic alcohol, in the presence of a Lewis acid catalyst, in the absence of solvent, at a temperature of above 60 to 200° C, and at a pressure of 0.001 to 1.1 bar absolute pressure (bara), provided that the reaction mixture is sparged with an inert carrier gas if the pressure is above 0.67 bara.

2. The process according to claim 1 wherein the catalyst is magnesium chloride.

3. The process according to claim 1 or 2 wherein the removal of the by-product HCl is enhanced by sparging with a dry inert carrier gas.

4. The process according to any one of claims 1 to 3 wherein the Lewis acid catalyst is used in an amount of 100 to 1,750 ppm, based on the total amount of phenyl chlorophosphate starting materials.

5. A two-step process to prepare a mixture of monoalkyl diphenyl phosphates and dialkyl monophenyl phosphates wherein in a first step phosphorus oxychloride is reacted with phenol and in a second step in accordance with the process according to any one of claims 1 to 4 the mixture of diphenyl monochlorophosphates and monophenyl dichlorophosphates resulting from the first step is reacted with an aliphatic alcohol.

6. The two-step process according to claim 5 wherein the Lewis acid catalyst is completely added in the first step of the process and in the second step of the process no additional Lewis acid catalyst is added.

7. The two-step process according to claim 5 or 6 wherein at least part of the monophenyl dichlorophosphate from the first step is recycled, so that the alkyl diphenyl phosphate to dialkyl phenyl phosphate ratio of the product mixture of the second step is greater than the diphenyl chlorophosphate to monophenyl dichlorophosphate ratio resulting from the first reaction step without a recycle stream.

8. The two-step process according to any one of claims 5-7 wherein at least part of the monophenyl dichlorophosphate is removed from the reaction mixture from the first reaction step by a distillation or rectification step.

9. The process according to any one of claims 1-8 comprising an additional purification step.

10. The process according to any one of claims 1-9 that is a continuous, semi-continuous or batch process.

11. A mixture comprising monoalkyl diphenyl phosphates and dialkyl monophenyl phosphates obtainable from the process according to any one of preceding claims, containing at least 20% by weight of alkyl diphenyl phosphate, based on the weight of all alkyl phenyl phosphates in the mixture.

12. A mixture comprising mono-2-ethylhexyl diphenyl phosphate and di-2-ethylhexyl phenyl phosphates, of i-decyldiphenyl phosphate and di-i-decyl phenyl phosphates or of i-dodecyl diphenyl phosphates and di-i-dodecyl phenyl phosphate.

13. Use of the mixture of claim 11 or 12 as a plasticizer, lubricant, and/or flame retardant.